LOUISIANA conservationist

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JOHN J. McKEITHEN, Governor

I give my pledge as an American to save and faithfully to defend from waste the natural resources of my country—its soil and minerals, its forests, waters and wildlife.

The Louisiana Conservationist received two awards for excellence from the International Association of Business Communicators District II at the annual conference in Athens, Georgia. It was named Best Overall Magazine and Best Nonprofit Organization's Magazine.

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electronic alligators

Personnel of the Refuge Division of the Louisiana Wild Life and Fisheries Commission are currently utilizing some of the newest and most sophisticated field equipment to be introduced into the field of wildlife management in recent years—radio telemetry. That is, tracking animals which have been radio equipped with a collar-type radio package. Telemetry was first used in the late 1950's and is presently being employed on the Rockefeller Refuge to delve into facets of the life history of the American alligator. For the past three years, biologists of the Refuge Division have been capturing and attaching radio collars to sexually mature male and female alligators and tracking these alligators with portable receivers. The objectives of these studies were to determine the daily and seasonal movement of individual alligators. Also, to determine the minimum home range of individual alligators and to relate the movements to habitat preferences.

Due largely to excessive hunting pressure, Louisiana's alligator population declined drastically from the mid-1930's through the early 1960's. This population decline was primarily brought about as a result of a systematic exploration of the natural resources of the coastal marshes of the state. Canals were dug into the remote areas of the marshes for the development of the various oil and gas leases. In a relatively short period of time, the development was expanded to include a network of canals along the entire Louisiana coast. This network of waterways provided hunters and trappers convenient access to the more remote marshes for the purpose of hunting alligators and trapping fur-bearing animals. This activity also

brought about a drastic change in the plant ecology of the entire Louisiana coast.

A species as vulnerable as the alligator could not withstand this indiscriminate killing and within a short period of time the alligator population was greatly reduced. Louisiana became aware of this population decline in the mid-1950's; however, only general management practices were known concerning this reptile. Protection was the main tool used in managing the alligator and in 1960 the first law was passed aimed at its protection. A size limit and maximum season length was established in order to curtail some of this hunting pressure in 1963, the season was closed statewide and enforcement activities were stepped up in order to afford the necessary protection to enable this animal to stage a comeback.

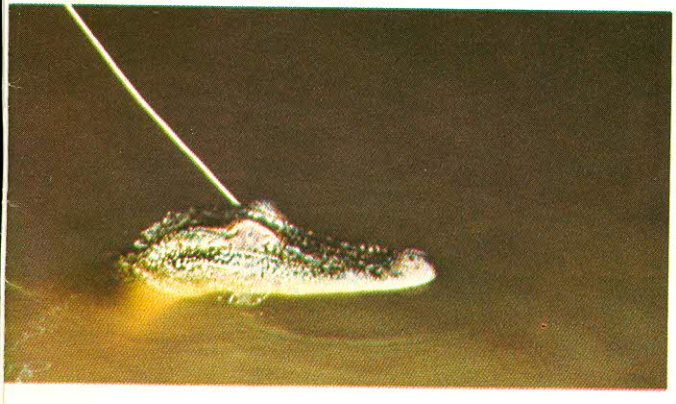
However, today this population decline is being reversed. With the strict enforcement effort exerted on alligator poachers, illegal buyers, and dealers, and the stiff fines and in some cases jail sentences handed down to the poachers, the alligator population has virtually tripled statewide over the past decade.

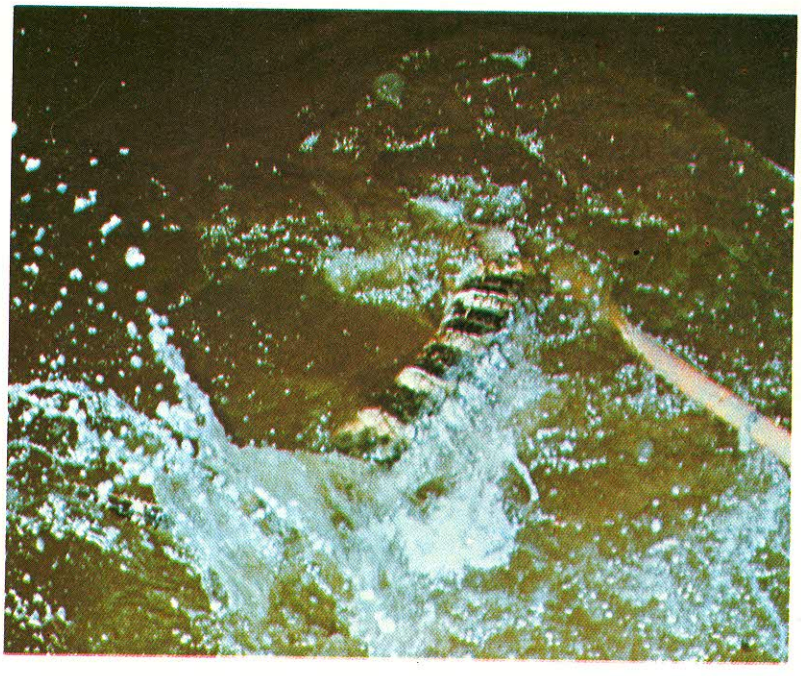
TED JOANEN AND LARRY McNEASE
Photography by Lloyd Poissenot

Studies conducted on Rockefeller Refuge for the past few years have demonstrated that more information is needed on the alligator movements and factors effecting movement before habitat management can be initiated. Also, in setting harvest regulations, alligators can be selectively harvested when the movements of certain segments of the population are known. With this in mind, a telemetric study of adult alligators was begun on Rockefeller Refuge in the summer of 1969.

It became quite apparent in the past decade that radio telemetry can contribute sufficiently to the field of wildlife management. Radio telemetry has become a tool that permits the observation of an animal continuously, completely undisturbed, and in its natural environment. The use of radio telemetry allows a more comprehensive study of the alligator in its environmental niche than is possible using conventional methods of marking and recapturing.

In 1969, five adult females were equipped with collar-type transmitters and monitored daily for a period from mid-May to early November (onset of hibernation) with a portable directional receiver. Tracking alligator movements normally involved the use of a hand-held antenna from permanent listening stations. At the time a radio signal was received the direction of the signal was determined by compass bearings and the station number and compass bearing recorded. These compass bearings were then plotted on a map and the exact





Alligators are hunted at night with headlamps. Here a flexible steel noose is being slipped over an alligator's head. Violent thrasing takes place when the noose is tightened. Then it is up to the researchers to get the alligator into the boat and secured in a sack.

position of the animal was determined. At least two compass bearings had to be made to accurately locate each animal.

During the study involving the nesting females, it was found that these alligators used two distinct marsh types. The females were found to use open water areas (canals, bayous, or large ponds) almost exclusively during early spring (courtship and breeding period). For the remainder of the year for which the alligators remained active, the females spent the majority of their time in isolated dens in the marsh. The movement from open water to marsh dens took place in early June, just at the onset of parental duties involved with nest construction and egg laying.

The greatest amount of movement for females was found to occur in May, as one would expect, when they had their intentions focused on courting. Once nesting began, the maternal instincts of these animals took over and their activities were largely centered around a one-third acre area surrounding the nest site. Home range for the females averaged in size from 6.4 acres up to 40 acres in size.

Daily information currently being collected on the males is adding appreciably to our overall understanding of this animal. If we had to pick one phrase to best describe the big bull alligator it would be unquestionably, "playboy after dark" His large size and aggressiveness lets him reign supreme over the marsh and this is reflected in his movement patterns.

Initial data on the male indicates that they have very large territories, occasionally traveling from four to five miles in one night's time. One nine foot bull moved some 20 miles from his capture location over a two and one-half month period. The majority of the males tend to prefer open water areas, such as, canals, bayous, and large marsh ponds and these are the animals that show the greatest amount of movement.

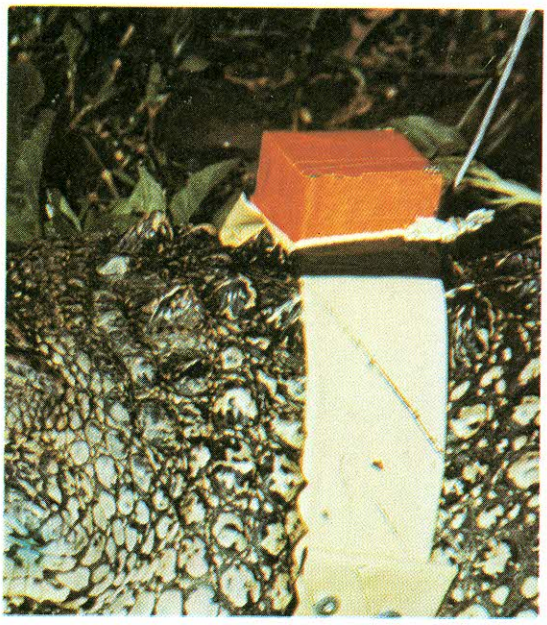
A couple of the gentlemen currently under study have moved into large land-locked marsh ponds and old abandoned bayous. These alligators have exhibited quite a bit of daily movement, but their movements seem to follow a set pattern. Home ranges for these bulls are not nearly as large as for the alligators using the canals and open bayous.

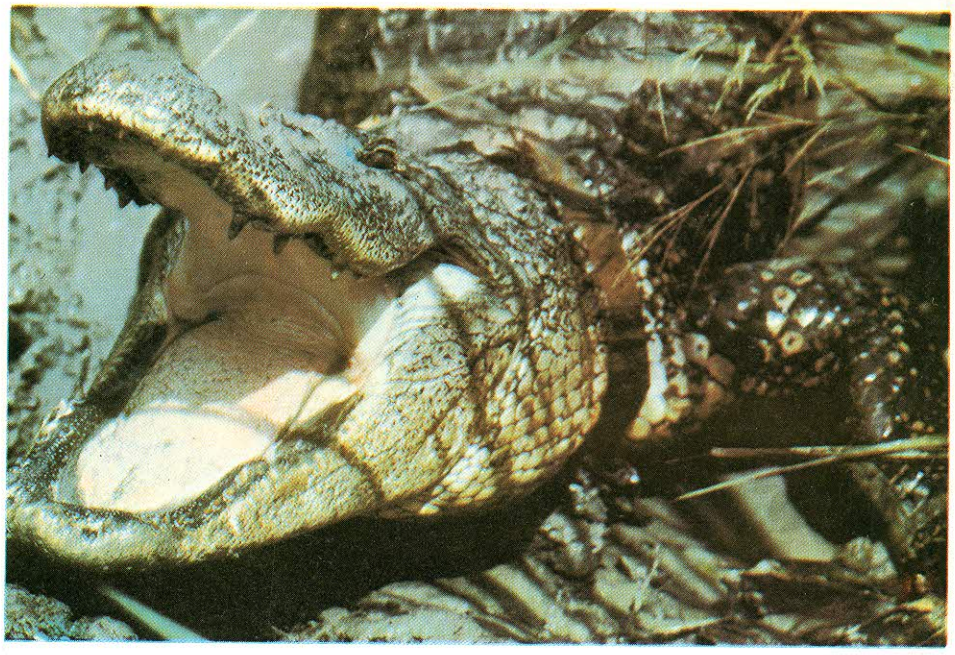
The ultimate goal of the professional wildlife manager is the wise use on a sustained yield basis of our natural resources. With a better understanding of the movement patterns and preferred habitat types of the adult alligator, management practices could then be incorporated into a management plan to encourage and maintain maximum population levels of alligators. Once this population level has been reached then and only then could a sustained yield harvest be recommended. If we apply this concept of management to the alligator, the utmost care should be exercised in protecting the breeding segment of the population. The big bulls and mature females make up only a small portion of the overall population. This segment of the population must be protected to insure a good

crop of alligators each year.

The tendency of the adult alligators to selectively seek out open water areas during the spring and early summer demonstrates that this is an important consideration to be made in the management of the alligator. Installation of water control structures have proven desirable in stabilizing water levels during periods of drought or low tides. This type management would maintain the open water situation needed by the adult alligators during this period and also enhance the value of the water area for aquatic forms of life which are so important in the alligator food chain.

In the past, the alligator has proven to be a valuable resource to Louisiana residents. Only through proper management, enforcement, and research can this animal be maintained at a harvestable level. It is the intention of the Louisiana Wild Life and Fisheries Commission to see that every effort is made with the alligator so that this animal may continue to be a perpetual and useful segment of Louisiana's economy and ecology.





Opposite Page—Radio telemetry is one of the latest tools in alligator research. Here an alligator is being fitted with a radio transmitter which will allow researchers to follow its movements without visual contact. Fastening the collar firmly in place is last step in preparing an alligator for radio telemetry research.

Upper Right—Close up of the transmitting device that will allow researchers to trace the movements of this alligator.

All alligators are weighed, measured and given permanent markings so that growth rate can be determined when that alligator is again taken by persons engaged in alligator research.

Eventually the transmitter will be worn off leaving the alligator with only a plastic collar. Meanwhile much valuable data will have been collected by radio telemetry.